Nebraska Ethanol Board

Spill Prevention, Control, and Countermeasures

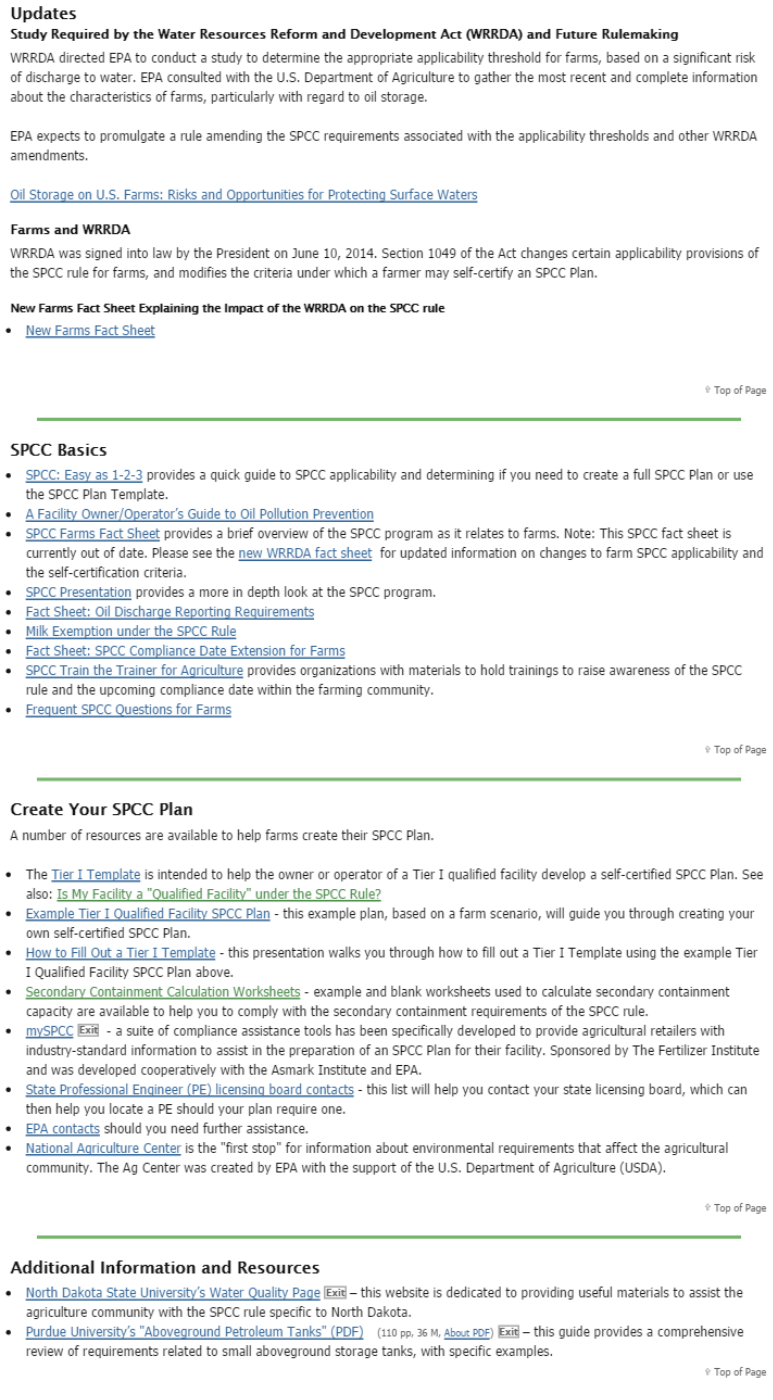
By Julian Davis

Who I am

- Julian Davis
  - Chemical Engineering student at the University of Nebraska – Lincoln
  - Hometown: Omaha, Nebraska
  - Real Home: Othmer Hall, Department of Chemical Engineering
  - Interest: Research in Renewable and Alternative Energies

Brief Introduction to the Assignment

- Phase 1: Spill Prevention, Control, and Countermeasures (SPCC)
  - Demystifying the Environmental Protection Agency (EPA)
  - Making sure the complicated EPA regulations get transcribed to simpler and easier understand terms
  - Understanding the concerns of agricultural producers
- Phase 2: Spreading the word about SPCC
  - Creating a self-certifiable SPCC Plan for agriculture
  - Creating a SPCC Newsletter for Distribution
  - Creating an Excel Calculator for Necessary Calculations



Updates

Study Required by the Water Resources Reform and Development Act (WRRDA) and Future Rulemaking

WRRDA directed EPA to conduct a study to determine the appropriate applicability threshold for farms, based on a significant risk of discharge to water. EPA consulted with the U.S. Department of Agriculture to gather the most recent and complete information about the characteristics of farms, particularly with regard to oil storage.

EPA expects to promulgate a rule amending the SPCC requirements associated with the applicability thresholds and other WRRDA amendments.

Oil Storage on U.S. Farms: Risks and Opportunities for Protecting Surface Waters

Farms and WRRDA

WRRDA was signed into law by the President on June 10, 2014. Section 1049 of the Act changes certain applicability provisions of the SPCC rule for farms, and modifies the criteria under which a farmer may self-certify an SPCC Plan.

New Farms Fact Sheet Explaining the Impact of the WRRDA on the SPCC rule

- New Farms Fact Sheet

Top of Page

SPCC Basics

- SPCC: Easy as 1-2-3 provides a quick guide to SPCC applicability and determining if you need to create a full SPCC Plan or use the SPCC Plan Template.
- A Facility Owner/Operator's Guide to Oil Pollution Prevention
- SPCC Farms Fact Sheet provides a brief overview of the SPCC program as it relates to farms. Note: This SPCC fact sheet is currently out of date. Please see the new WRRDA fact sheet for updated information on changes to farm SPCC applicability and the self-certification criteria.
- SPCC Presentation provides a more in depth look at the SPCC program.
- Fact Sheet: Oil Discharge Reporting Requirements
- Milk Exemption under the SPCC Rule
- Fact Sheet: SPCC Compliance Date Extension for Farms
- SPCC Train the Trainer for Agriculture provides organizations with materials to hold trainings to raise awareness of the SPCC rule and the upcoming compliance date within the farming community.
- Frequent SPCC Questions for Farms

Top of Page

Create Your SPCC Plan

A number of resources are available to help farms create their SPCC Plan.

- The Tier I Template is intended to help the owner or operator of a Tier I qualified facility develop a self-certified SPCC Plan. See also: Is My Facility a "Qualified Facility" under the SPCC Rule?
- Example Tier I Qualified Facility SPCC Plan - this example plan, based on a farm scenario, will guide you through creating your own self-certified SPCC Plan.
- How to Fill Out a Tier I Template - this presentation walks you through how to fill out a Tier I Template using the example Tier I Qualified Facility SPCC Plan above.
- Secondary Containment Calculation Worksheets - example and blank worksheets used to calculate secondary containment capacity are available to help you to comply with the secondary containment requirements of the SPCC rule.
- mySPCC Exit - a suite of compliance assistance tools has been specifically developed to provide agricultural retailers with industry-standard information to assist in the preparation of an SPCC Plan for their facility. Sponsored by The Fertilizer Institute and was developed cooperatively with the Asmark Institute and EPA.
- State Professional Engineer (PE) licensing board contacts - this list will help you contact your state licensing board, which can then help you locate a PE should your plan require one.
- EPA contacts should you need further assistance.
- National Agriculture Center is the "first stop" for information about environmental requirements that affect the agricultural community. The Ag Center was created by EPA with the support of the U.S. Department of Agriculture (USDA).

Top of Page

Additional Information and Resources

- North Dakota State University's Water Quality Page Exit – this website is dedicated to providing useful materials to assist the agriculture community with the SPCC rule specific to North Dakota.
- Purdue University's "Aboveground Petroleum Tanks" (PDF) (110 pp, 36 M, About PDF) Exit – this guide provides a comprehensive review of requirements related to small aboveground storage tanks, with specific examples.

Top of Page

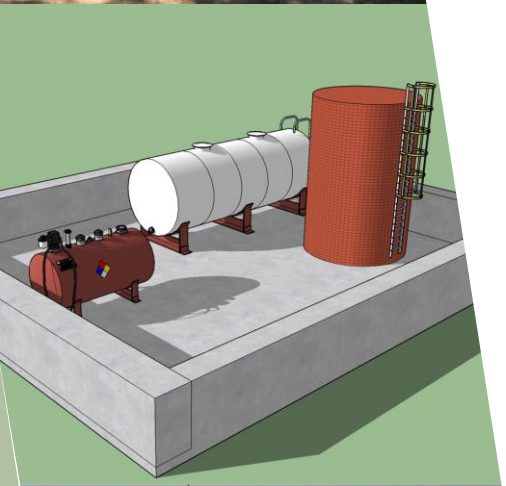
Need for this Project

- Concerns from farmers that they are no longer going to have fuel delivered
- Far too many documents to read to get started
  - Time is money as they say
- Wording is vague and highly technical in areas
- EPA fill-in SPCC form is huge
- No real guidance

Spill Prevention, Control, and Countermeasures

- What is it?
  - Spill Prevention, Control, and Counter Measures (SPCC) comes from the Clean Water Act, enacted in 1974
  - SPCC is a set of federal regulations designed to prevent and limit damage from oil spills
  - Under SPCC rule, a farm is defined as “a facility…[that]… normally would have produced and sold, $1,000 or more of agricultural products during a year.”
- Two Flavors
  - Tier I Self-Certifiable Option
  - Tier II Professional Engineer Certification Option

Before and After SPCC



Goal of Spill Prevention, Control, and Countermeasures and this Project

Understand the Regulations → Apply the information → Assess the Situation → Design Necessary SPCC Safeguards → Install Necessary SPCC Safeguards → Upkeep of SPCC Safeguards

Tier I Self-Certification and Tier II Professional Engineer Certification

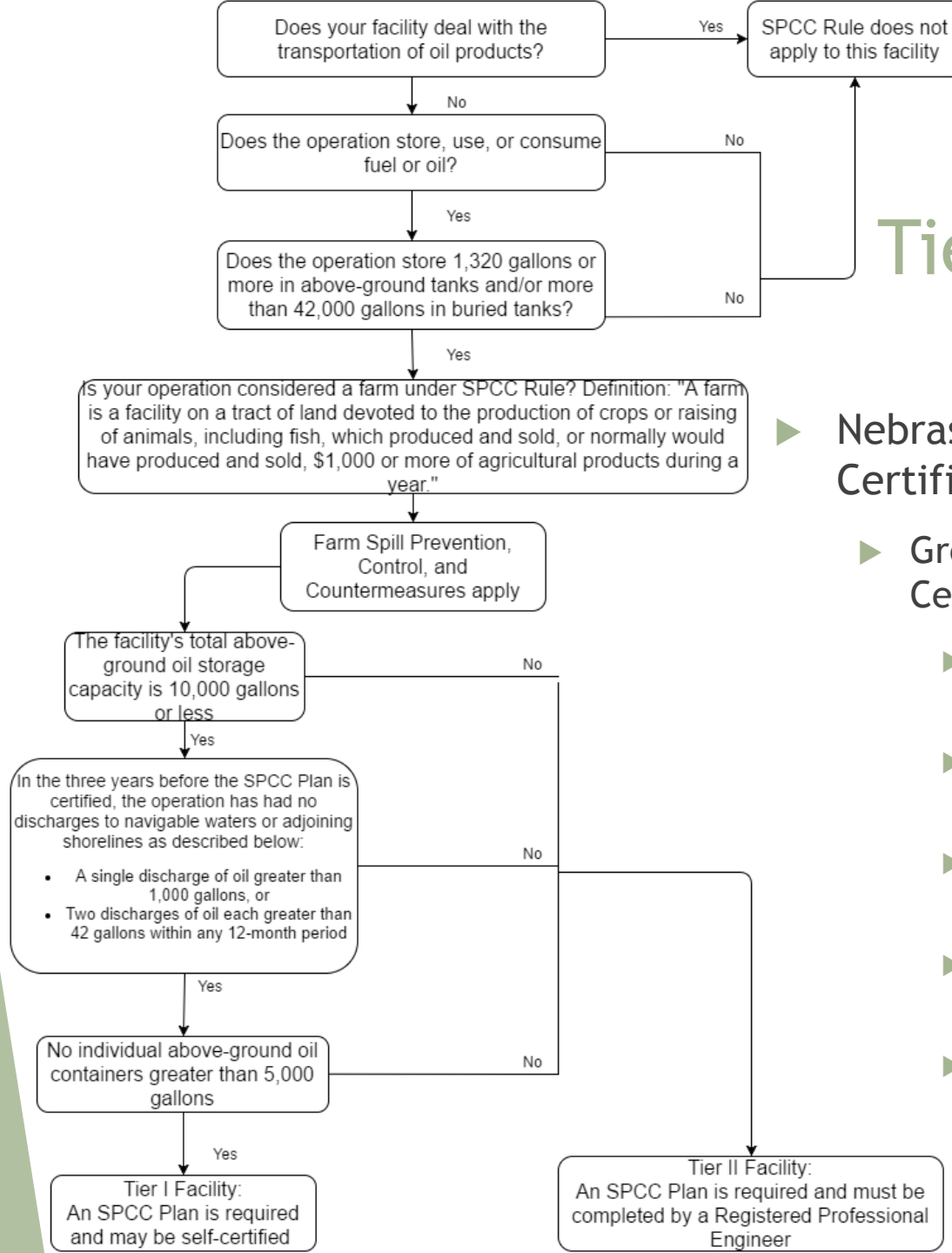
- Two Flavors of EPA SPCC Certification, Tier I and Tier II
- Tier I (Easier, Faster, and Free)
  - Farms that exceed 1,320 gallons of oil storage in Aboveground Storage Tanks (AST) and less than 10,000 gallons in AST
  - No fuel in Underground Storage Tanks (UST),
  - Have not had a recent spill (3 year) into navigable waters
  - If you meet the above criteria you are able to comply with Tier I SPCC Plan requirements
- Tier II (Harder, Time Consuming, and $$$)
  - Farms that exceed 10,000 gallons of oil storage in Aboveground Storage Tanks (AST)
  - Have fuel in Underground Storage Tanks (UST),
  - Have had a recent spill (3 year) into navigable waters
  - If you meet the above criteria you are to comply with Tier II SPCC Plan requirements

Where there’s a will …

…there's a way…

Tier I Self-Certification and Tier II Professional Engineer Certification

- Tier I is the Focus for this Project
  - You could hire a Professional Engineer, but …
    - Expensive
    - Harder to Find
    - Time Consuming
  - Instead there is a Tier I Plan being developed for …
    - Distribution to as many agricultural producers as possible
    - Ease of use and understanding (Handholding approach)
    - Reducing strain on the wallet
    - Making sure a producer is in compliance with the EPA regulations



Tier I Self-Certification

- Nebraska Ethanol Board Tier I Self-Certification Plan
  - Greatly Simplified from the EPA Self-Certification Example Form
    - Reworded to make situations and requirements more understandable
    - Eliminated components that do not relate to agricultural producers
    - Newsletter with common agricultural producers questions answered
    - Excel Calculator that will guide a producer through needed calculations
    - Address common agricultural producers questions

Self-Certification Form

Nebraska Ethanol Board
TIER I QUALIFIED FACILITY SPCC PLAN TEMPLATE

Instructions to Complete this Template

This template is intended to help the owner or operator of a Tier I qualified facility develop a self-certified Spill Prevention, Control, and Countermeasure (SPCC) Plan. To use this template, your facility must meet all of the applicability criteria of a Tier I qualified facility listed under §112.3(g)(1) of the SPCC rule and/or shown in the SPCC qualification flowchart. This template provides every SPCC rule requirement necessary for a Tier I qualified facility, which you must address and implement.

You may use this template to comply with the SPCC regulation or use it as a model and modify it as necessary to meet your facility-specific needs. If you modify the template, your Plan must include a section cross-referencing the location of each applicable requirement of the SPCC rule and you must ensure that your Plan is an equivalent Plan that meets all applicable rule requirements of 40 CFR 112.6(a)(3).

You may complete this template either electronically or by hand on a printed copy. This document is a reformatted version of the template found in Appendix G of 40 CFR part 112.[a] No substantive changes have been made. Please note that a "Not Applicable" ("N/A") column has been added to both Table G-10 (General Rule Requirements for Onshore Facilities) and Table G-11 (General Rule Requirements for Onshore Oil Production Facilities). The "N/A" column should help you complete your self-certification when a required rule element does not apply to your facility. Use of the "N/A" column is optional and is not required by rule.

All Tier I qualified facility self-certifiers must complete Sections I, II, and III. Additionally, the owner or operator of an:

- Onshore facility (excluding production) must complete Section A.

Complete and include with your Plan the appropriate attachments. You should consider printing copies of the attachments for use in implementing the SPCC Plan (e.g. Attachment 3.1 - Inspection Log & Schedule; Attachment 4 - Discharge Notification Form).

To complete the template, check the box next to the requirement to indicate that it has been adequately addressed. Either write "N/A" in the column or check the box under the "N/A" column to indicate those requirements that are not applicable to the facility. Where a section requires a description or listing, write in the spaces provided (or attach additional descriptions if more space is needed).

Below is a key for the colors used in the section headers:

Sections I, II, and III: Required for all Tier I qualified facilities
Section A: Onshore facilities (excluding production)
Attachments: 1 - Five Year Review and Technical Amendment Logs 2 - Oil Spill Contingency Plan and Checklist 3 - Inspections, Dike Drainage and Personnel Training Logs 4 - Discharge Notification Form

After you have completed all appropriate sections, certify and date your Plan, and then implement it by the compliance date. Conduct inspections and tests in accordance with the written procedures that you have developed for your facility. You must keep with the SPCC Plan a record of these inspections and tests, signed by the appropriate supervisor or inspector, for a period of three years.

Do not forget to periodically review your Plan (at least once every five years) or to update it when you make changes to your facility. You must prepare amendments within six months of the facility change, and implement them as soon as possible, but not later than six months following preparation of any amendment.

In the event that your facility releases oil to navigable waters or adjoining shorelines, immediately call the National Response Center (NRC) at 1-800-424-8802. The NRC is the federal government's centralized reporting center, which is staffed 24 hours per day by U.S. Coast Guard personnel.

[a] Please note that the use of this template is not mandatory for a Tier I qualified facility. You may also meet the SPCC Plan requirement by preparing a satisfactory Tier II qualified facility Plan, preparing a satisfactory Plan that is certified by a Professional Engineer, or by developing an equivalent Plan for a Tier I qualified facility. Further information on the requirements of these methods can be found in 40 CFR part 112.6(a)(1). If you use any of these alternative methods you must include a cross reference in your Plan that shows how the equivalent Plan meets all applicable 40 CFR part 112 requirements.

This template constitutes the SPCC Plan for the facility, when completed and signed by the owner or operator of a facility that meets the applicability criteria in §112.3(g)(1). This template addresses the requirements of 40 CFR part 112.

Tier I Qualified Facility SPCC Plan

Maintain a complete copy of the Plan at the facility if the facility is normally attended at least four hours per day, or for a facility attended fewer than four hours per day, at the nearest field office. When making operational changes at a facility that are necessary to comply with the rule requirements, the owner/operator should follow state and local requirements (such as for permitting, design and construction) and obtain professional assistance, as appropriate.

Facility Description

Facility Name _____
Facility Address _____
City _____ State _____ ZIP _____
County _____ Tel. Number ( ) -
Owner or Operator Name _____
Owner or Operator Address _____
City _____ State _____ ZIP _____
County _____ Tel. Number ( ) -

I. Self-Certification Statement (§112.6(a)(1))

The owner or operator of a facility certifies that each of the following is true in order to utilize this template to comply with the SPCC requirements:

I _____ certify that the following is accurate:

1. I am familiar with the applicable requirements of 40 CFR part 112;
2. I have visited and examined the facility;
3. This Plan was prepared in accordance with accepted and sound industry practices and standards;
4. Procedures for required inspections and testing have been established in accordance with industry inspection and testing standards or recommended practices;
5. I will fully implement the Plan;
6. This facility meets the following qualification criteria (under §112.3(g)(1)):
   a. The aggregate aboveground oil storage capacity of the facility is 10,000 U.S. gallons or less; and
   b. The facility has had no single discharge as described in §112.1(b) exceeding 1,000 U.S. gallons and no two discharges as described in §112.1(b) each exceeding 42 U.S. gallons within any twelve month period in the three years prior to the SPCC Plan self-certification date, or since becoming subject to 40 CFR part 112 if the facility has been in operation for less than three years (not including oil discharges as described in §112.1(b) that are the result of natural disasters, acts of war, or terrorism); and
   c. There is no individual oil storage container at the facility with an aboveground capacity greater than 5,000 U.S. gallons.
7. This Plan does not deviate from any requirement of 40 CFR part 112 as allowed by §112.7(a)(2) (environmental equivalence) and §112.7(d) (impracticability of secondary containment) or include any measures pursuant to §112.9(c)(6) for produced water containers and any associated piping;
8. This Plan and individual(s) responsible for implementing this Plan have the full approval of management and I have committed the necessary resources to fully implement this Plan.

Implication and Frequency of Oil Spills

- It is difficult to quantify the actual amount of reported/unreported spills
- After speaking with Joe Francis, Kirk Morrow, and Ryan Green of the NDEQ along with a representative at the Environmental Protection Agency, and Jordan Dux of the Nebraska Farm Bureau, an estimate of up to 90-95% of spills go unreported
- In 2013, *Ohio Environmental Protection Agency v. Lowry*
  - A 250-gallon fuel tank spilled its entire contents in Jefferson Township
  - The owner did not feel as though he was responsible for the hazardous spill, and as such, refused to pay for the cleanup, and so he was taken to court
  - It was found that he was responsible for the hazardous spill of fuel and was ordered to pay the bill of $15,855.92

National Response Center Data

SEQNOS	Description of Incident	Type of Incident	Incident Cause	Incident Date Time	Incident DTG
1141869	CALLER REPORTED A CATASTROPHIC FAILURE OF AN ABOVE GROUND STORAGE TANK.	STORAGE TANK	EQUIPMENT FAILURE	3/2/2016 20:00	DISCOVERED
1120768	CALLER STATED WHILE FILLING A TANK A TIMER WAS SET INCORRECTLY CAUSING THE TANK TO OVERFILL 50 GALLONS OF DIESEL. THE SPILL WAS RELEASED TO A SELF-CONTAINED LAKE.	STORAGE TANK	OPERATOR ERROR	6/24/2015 6:00	DISCOVERED
1075598	CALLER IS REPORTING A SPILL THAT BEGAN LAST NIGHT AND WAS CONTAINED WHEN IT INITIALLY OCCURRED. AT 0830 CENTRAL TIME ON 03MAR2014, IT WAS DISCOVERED THAT THERE WAS MATERIAL LEAKING THROUGH THE VALVE OF THE CONTAINMENT AREA AND HAS ENTERED A WATERWAY. A STORAGE TANK LEVEL INDICATOR WAS MALFUNCTIONING CAUSING AN OVERFILL OF MATERIAL TO THE TANK. THERE WAS LESS THAN 1,500 GALLONS THAT WAS OVERFILLED TO CONTAINMENT. THE AMOUNT THAT ESCAPED CONTAINMENT AND AMOUNT IN THE WATER IS UNKNOWN.	STORAGE TANK	EQUIPMENT FAILURE	3/2/2014 9:40	OCCURRED
1077178	CALLER IS REPORTING A DISCHARGE OF DIESEL FUEL FROM A STORAGE TANK DUE TO UNKNOWN CAUSES.	STORAGE TANK	UNKNOWN	3/20/2014 0:50	DISCOVERED
1077205	CALLER STATED 300 GALLONS OF NEW LOCOMOTIVE OIL (LUBE OIL) RELEASED AS AN OVERFLOW DURING FILLING OPERATIONS OF AN ABOVE GROUND STORAGE TANK.	STORAGE TANK	UNKNOWN	3/20/2014 10:00	OCCURRED
1090716	CALLER IS REPORTING THAT A STORAGE TANK WAS OVERFILLED RESULTING IN A SPILL OF FUEL TO THE GROUND.	STORAGE TANK	EQUIPMENT FAILURE	7/30/2014 14:10	OCCURRED
1017351	THE CALLER IS REPORTING THAT AN UNKNOWN AMOUNT (OVER 100 GALLONS) OF LUBE OIL DISCHARGED WHILE BEING PUMPED FROM A SUPPLY TANK AND INTO 2 HOLDING TANKS. ALL PRODUCT RELEASED INTO A CONTAINMENT AREA.	STORAGE TANK	OPERATOR ERROR	7/10/2012 20:33	DISCOVERED
1019969	CALLER STATED THERE IS A SPILL OF USED MOTOR OIL FROM (SIX) 500 TO 1000 GALLON STORAGE TANKS THAT DO NOT HAVE ANY SECONDARY CONTAINMENT. THE USED MOTOR OIL IS SPILLING ONTO THE GROUND.	STORAGE TANK	OTHER	8/4/2012 14:00	OCCURRED
1023453	CALLER REPORTED THAT WHILE OFFLOADING TO A TANK, THE TANK OVERFLOWED DISCHARGING 50 GALLONS OF DIESEL FUEL INTO CONTAINMENT.	STORAGE TANK	OPERATOR ERROR	9/4/2012 12:00	OCCURRED
991006	CALLER IS REPORTING A DISCHARGE OF DIESEL FUEL FROM A STORAGE TANK DUE TO POSSIBLE MECHANICAL ERROR, INVESTIGATION IS UNDERWAY.	STORAGE TANK	EQUIPMENT FAILURE	9/27/2011 16:56	OCCURRED
929411	CALLER IS REPORTING A RELEASE OF MATERIAL FROM A STORAGE TANK RELIEF VALVE DUE TO UNKNOWN CAUSES.	STORAGE TANK	UNKNOWN	1/22/2010 23:58	OCCURRED
945883	CALLER REPORTED A TANK OVERFLOW OF USED OIL INTO SECONDARY CONTAINMENT DUE TO UNKNOWN REASONS.	STORAGE TANK	UNKNOWN	6/29/2010 8:56	DISCOVERED
948906	DUE TO EQUIPMENT FAILURE, THERE WAS A DISCHARGE OF DIESEL FROM A STORAGE TANK. THE SPILL CAME FROM THE HOSE ON THE 1000 GALLON STORAGE TANK.	STORAGE TANK	EQUIPMENT FAILURE	7/26/2010 12:00	OCCURRED
960365	CALLER STATES THAT A FUEL STORAGE TANK OVERFLOWED AND RELEASED 800 GALLONS OF DIESEL FUEL INTO SECONDARY CONTAINMENT.	STORAGE TANK	EQUIPMENT FAILURE	11/20/2010 8:11	DISCOVERED

Hazards of Oil Spills

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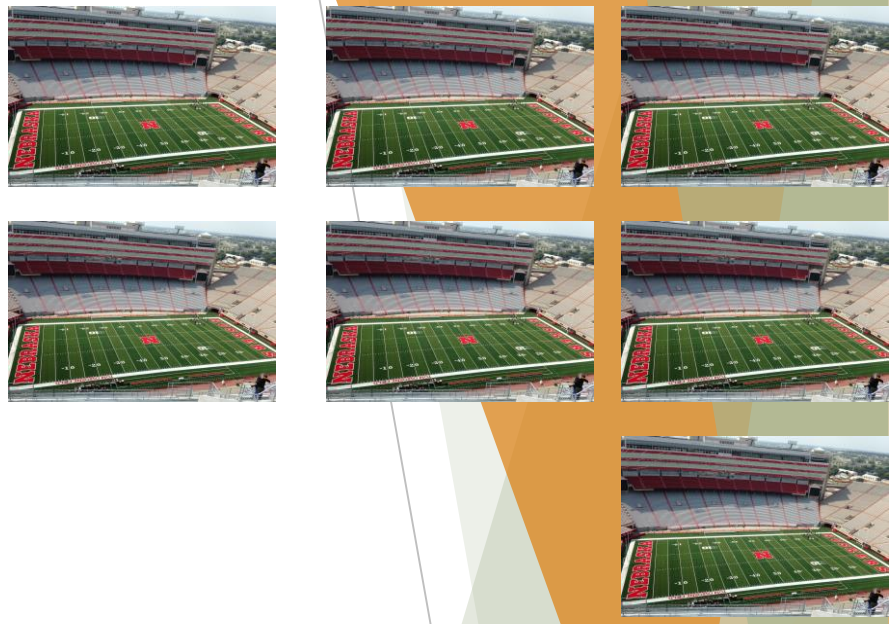
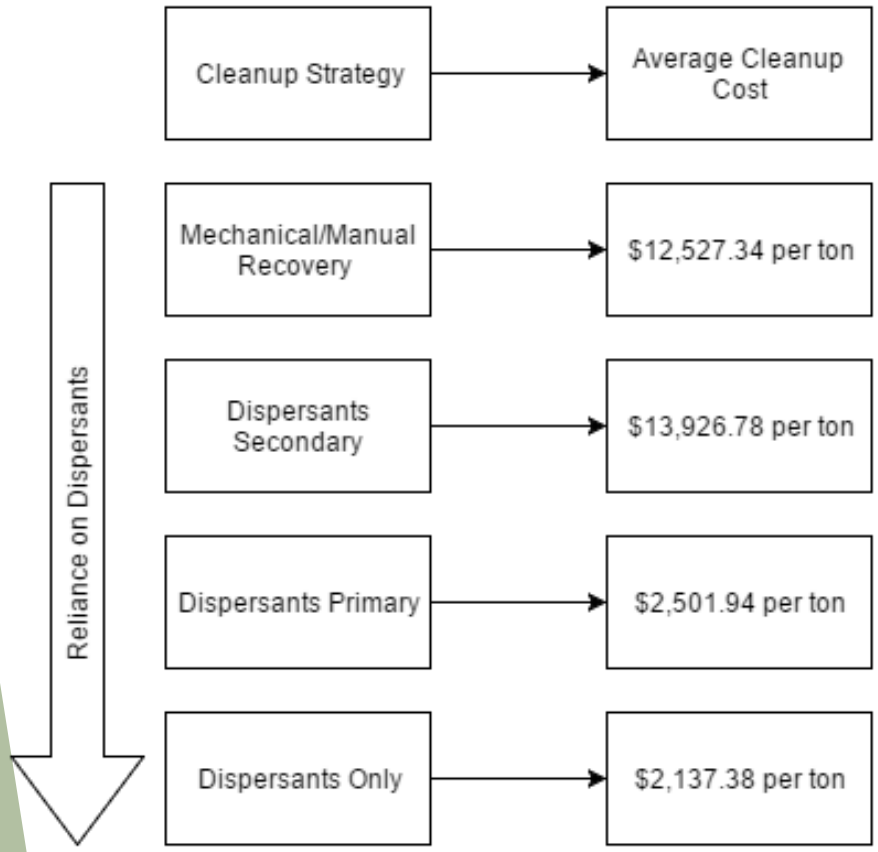
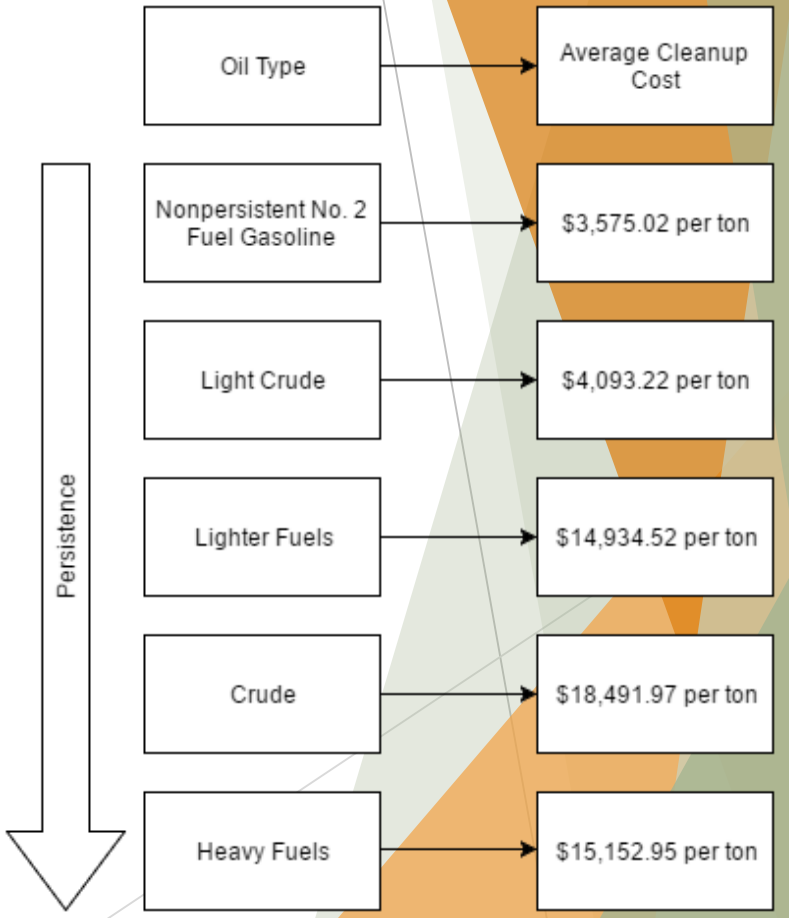


- One gallon of gasoline can contaminate an area 7 times larger than an American Football field
- Oil, in high enough concentrations, can poison animals by internal and external routes of exposure
- Smaller organisms can be smothered by a thick layer of oil washing ashore
- Studies by NOAA scientists have shown that even small amounts of petroleum impair development of fish eggs and embryos
- Fuel additives such as benzene and MTBE have been classified as carcinogens

Cost of an Oil Spill



- An oil spill can be a costly expense if it is allowed to reach the environment
- Many factors can contribute to the cost
  - All situations and methods of cleanup are expensive
  - This does not include the cost of federal fines
  - Wildlife kills come with an added cost per kill
- "Embarrassment" Factor
  - Known as 'that guy' who had a spill



Excel Document

Containment	Width [in]	Len [in]	gal/in
	80	100	34.6

Initiate Program

Tank	Gas	Diesel	Gas	Gas	Diesel	Diesel	
Dia [in]	78	72	48	0	0	0	
Len [in]	48	42	40	0	0	0	Max
Cap [gal]	992.9	740.3	313.3	0.0	0.0	0.0	1092.2
Orient	V	V	V	V	V	V	
Offset [in]	3	8	6	0	0	0	

The height of the wall is "

Strap [in]	Disp [gal]	Disp [gal]	Disp [gal]	Disp [gal]	Disp [gal]	Disp [gal]	Vol
2	0.0	0.0	0.0	0.0	0.0	0.0	69.3
4	82.7	0.0	0.0	0.0	0.0	0.0	55.8
6	248.2	0.0	0.0	0.0	0.0	0.0	-40.4
8	413.7	0.0	62.7	0.0	0.0	0.0	-199.3
10	579.2	141.0	125.3	0.0	0.0	0.0	-499.2
12	744.7	282.0	188.0	0.0	0.0	0.0	-799.1
14	910.2	423.0	250.7	0.0	0.0	0.0	-1099.0
16	992.9	564.0	313.3	0.0	0.0	0.0	-1316.2
18	992.9	705.0	313.3	0.0	0.0	0.0	-1387.9
20	992.9	740.3	313.3	0.0	0.0	0.0	-1353.9
22	992.9	740.3	313.3	0.0	0.0	0.0	-1284.6
24	992.9	740.3	313.3	0.0	0.0	0.0	-1215.4

Distribution Of SPCC Documents

- “Knowledge has no value unless you use and share it”
- Working with various distribution sources to spread awareness of the SPCC document
  - **Nebraska Farmers Union -** John K. Hansen
  - **Nebraska Ethanol Board** - Todd Sneller
  - **Nebraska Coop Council** - Ed Woepple
  - **Nebraska Farm Bureau** - Jordan Dux
- SPCC Newsletter to…
  - Spread awareness
  - Answer common questions
  - Prepare agricultural producers for SPCC regulation changes to come

Recap of the Project

- Phase 1: Spill Prevention, Control, and Countermeasures (SPCC)
  - Demystifying the Environmental Protection Agency (EPA)
    - Hundreds of pages read, many phone calls made, plenty of calculations done
  - Make sure the complicated EPA regulations get transcribed to simpler to understand
    - Making a SPCC self-certifiable plan that uses easier to understand language
  - Understand the concerns of agricultural producers
    - Various meetings with agricultural producers and answering their question and passing their concerns along
- Phase 2: Spreading the word about SPCC
  - Creating a self-certifiable SPCC Plan for agriculture
    - Shortened down to 20 pages, reworded complex areas
  - Creating a SPCC Newsletter for Distribution
    - Make it known what is coming, how to get the information, and address common questions
  - Creating an Excel Calculator for Necessary Calculations
    - Make it easy to implement the necessary SPCC safeguards without difficult calculations

Questions/Comments/Concerns

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